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"ADVANCE & ACHIEVE"

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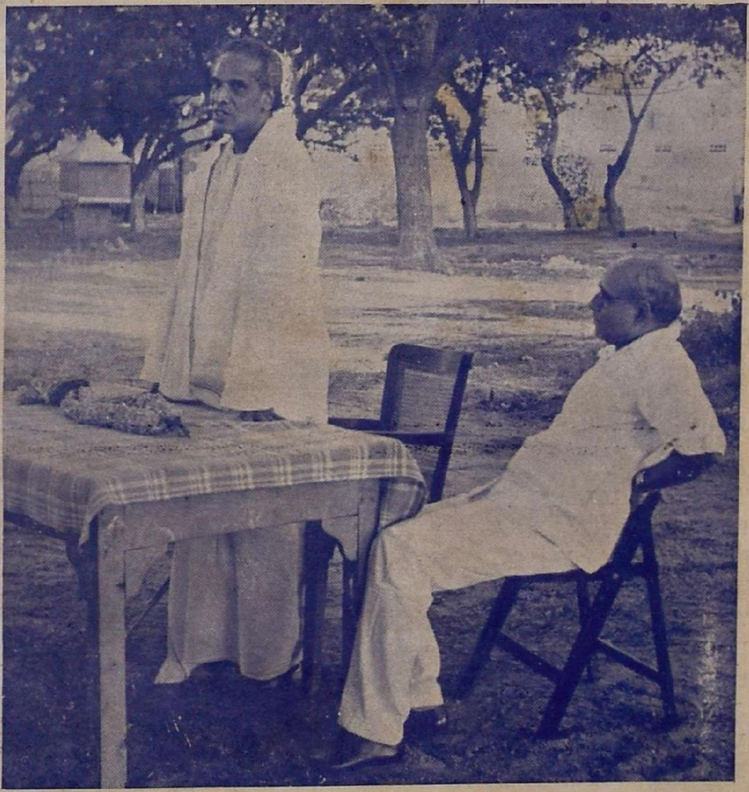

Mr. V. K. Krishna Menon addressing the members of the C.T.A., Mr. A. Krishnan, president of the C.T.A. presides.

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CONTENTS

		PAGE
1.	Tackling Foreign Markets (Editorial) ..	7
2.	Indian Films in Foreign Markets—*V. K. Krishna Menon's* Address (A Report)	10
3.	Achievements of Mr. Hari Babu in Make-up and Wig making	11
4.	Review of Twenty-five years of Sound Reproduction—Dr. Harry, F. Alson	12
5.	Production of Animated Cartoons—*Shanti S. Varma* ..	23
6.	Application of copy right law—How it affects Films—I. K. Menon	33
7.	The Mission of the Movies is to Teach—*V. Shantaram* ..	38
8.	The Primary Factor for the Success of a Motion Picture —Miss Indira Acharya ..	41
9.	**Flashing Thoughts :** Should An Actor Really Feel ?—Percy Fitzgerld ..	43

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Journal of the
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"ADVANCE & ACHIEVE"

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TACKLING FOREIGN MARKETS
(Editorial)

It is a happy thing to find that now-a-days our film producers are trying to focuss their attention on foreign markets but actually we see as well pointed out by one of our film critics that it is more Indian film-makers who go abroad than Indian films. If response to Indian films is very poor abroad, what is it due to and how to remedy it? The question has been dealt with, at length, by Mr. V. K. Krishna Menon, in his learned discourse, with his vast experience of countries and habits of peoples of the world, at a reception got up by our Association in his honour, a report of which is published in this issue, which might interest our producers.

Last month at a reception arranged by the Indian Motion Picture Producers' Association to Miss Seton, of the British Film Institution, she made it quite clear that Indian Films had little chance of being exhibited in the Commercial circuits of England, America and Europe. However there was consolation in her remarks that if these films had true indigenous appeal they could be released in special houses.

It is probably due to this failure to obtain a commercial market in Europe and America that the Indian Film producers turned their attention to Russia and China. The two delegations to these countries have achieved their object. Russia has already bought some Indian films and we learn that they have decided to do so regularly for commercial exhibition.

More pictures are produced, now-a-days, than such a number, which can conveniently be exhibited and hence the ever increasing bottle-neck for films, which is very discouraging for the producers. Further largest vested interests may be another important factor in blocking release facilities of several other pictures.

The only solution to these two problems is to tackle the producers and the exhibitors, and try to influence them, through our foreign offices, besides arranging for good publicity and propaganda. The Indian Motion Picture Producers' Association might even go a step further and try to have at least one theatre of their own, in one or two cities in various countries of the world. When our pictures are shown in big cities like London, New York, Paris, etc., naturally exhibitors in other towns come forward for these pictures and pave a way for their exhibitions in other theatres. This might rather appear to be extremely difficult, at the outset, but nothing impossible, if the I.M.P.P.A. is very earnest about it.

PLAN AND PRODUCE

Another very important thing is that all pictures intended to be sent abroad should be properly planned and produced with a good plot and development, good acting, good technique and above all, genuine indigenous back ground, with elements of our culture and civilisation so as to attract the foreign audiences.

It is also necessary to see that only such pictures with themes of paramount and universal appeal are sent abroad and never those with local or temporary appeal, however successful such pictures might have been in our country.

It may not be out of place to mention here that bad imitations of customs, music and dances of foreigners in our films is mainly responsible for their aversion to our films. It is reported that Mr. Frank Copra once told Mr. Rajkapoor that "so long you make imitations of Holywood films, you will remain where you are and we cannot consider you, as being ranged against us, in competition. But when you make rational films, Indian films in character of the texture of your soil and your people, we shall perhaps think only then, that you will attain an international position".

Are there not then, any Indian films appreciated by foreign audiences?

As answer to this question the following experiences of Mr. B. D. Garga might be read with interest. He travelled extensively in Europe during the past three years and attended many European film festivals, as an observer and a critic and was one of the representatives of the Indian film industry, who attended the Nineth Edinburgh Film Festival.

He says—"I was specially interested to feel the reaction of largely British audience to an Indian film. I had seen how Czech audiences reacted to an Indian film but different peoples have different temperaments largely fashioned by their own economic, social, cultural and historical backgrounds. At the Karlsbad Film Festival the audience gave a rapturous reception to "Two acres of Land" and later, when it was screened in an open air cinema

in the country, nearly 4,000 people came to see it. Their response was overwhelming in spite of the handicap that the film only had Czech subtitles. The magic of the visual image in this film was so great that they were able to follow the story quite easily without understanding the dialogue."

FINE RECEPTION

"I received a pleasant jolt in Edinburgh because after "Munna" had been shown the people around me had been so moved by the film that they were still overcome by the emotions it had aroused in them. Then they just looked at Abbas and exclaimed. "It was wonderful"—It was beautiful."

"This reaction of the Edinbugh audience to "Munna" strengthens my belief that distributors and exhibitors are far too shy and conservative in calculating the likely response of their own general public to foreign films offered them for presentation. Provided, a film is made with integrity and has its roots in the culture and social life of the country in which it is made, the idea that producers and directors must "keep their eye on the foreign market", if they want their films to be shown abroad, is not as important as some people would have us believe."

NEW REALISM

"If we can produce films on that pattern and discard the outworn cliches we have been using for the past 35 years, there is no reason why the Indian film should not find a ready response in the West. When I discussed this with well-known British film people at Edinburgh, they said the same thing."

"The Italians are following a distinct path of new realism. But the Japanese film industry, which is making rapid strides, has completely eclipsed the Italian film companies. In every frame of a Japanese picture you can see reflected the spirit of Japanese culture and traditions. The directors are putting their genius into the making of what Carl Dreyer calls the "abstract" approach with its emphasis on the free flight of the imagination."

"With a few brilliant exceptions, the Indian film, if it can be said to have a stamp of its own, has a stamp that is terribly uncinematic. If our films have to be distinguished with dances and songs, let us try to evolve a method in which they can be made an integral part of the story. For example, in the Epic Theatre in Germany, Herr Brecht has developed the oriental technique in which there is a narrator who tells in advance what is to come and he fills the gaps, by singing and narrating. This form was used in the Indian films in the early thirties, when the technique used was, of having a blind singer, who linked the sequences together with a commentary."

INDIAN FILMS IN FOREIGN MARKETS

Mr. V. K. KRISHNA MENON'S ADDRESS :

(A Report)

Speaking at a reception got up in his honour by the Cine Technicians Association of South India Mr. V. K. Krishna Menon while discussing about the various reasons why Indian films were not having a good market abroad and advised the technicians in the industry to strive hard to make a limited number of classical films of high technical standard comparable to those achieved in foreign countries and do a lot of publicity work in other countries without caring for immediate returns, before they wanted to capture the foreign markets.

The function which was held in the Congress grounds at Teynampet, Madras on the 31st August at 5 p.m. was presided over by Mr. A. Krishnan, President of the Association.

Mr. N. Krishnaswami, Secretary, welcomed Mr. Menon and explained the activities of the Association.

Mr. Krishna Menon, in his speech described the cinema was one of the 'windows through which the world could look out'. It was not merely an entertainment, but an art by itself. The Indian films, he felt, had not had a good market abroad on account of several reasons. Even in the United States of America, in spite of the fact they were producing too many films he poined out, the films were not doing well because new techniques in the industry, such as cinemascope, etc., were making its economy very difficult. With the coming in of new techniques, he feared, in another five years or so, the ordinary cinema would be totally out of date.

Indian films, he continued were not very popular abroad because a majority of their themes were either mythological or what they now called social, whose appeal was local, and one outside India could not understand them. There was legislation in several countries just as they had in India, restricting the entry of foreign films. There was also the difficulty of language. The length of the Indian films, Mr. Menon pointed out, was far more than the Western audiences could easily absorb. An ordinary show in the West, he said, had a variety in it and consisted of two stories together with some news pictures. Further, Mr. Menon added, one could not apparently sell a film in India unless it had music in it, while music had a very minor place in the films abroad. He felt that a study of these aspects by those interested in the industry would be worthwhile if they were to be prepared for a change.

Mr. Menon stated that the modern film was only about 30 years old in this country and it was too short a period to capture the world market, since the Western countries had worked at it for a longer time to achieve that objective. Only a great deal of patient work would help them in that direction, he added.

Answering a question, Mr. Krishna Menon said that at present it would be difficult for Indian films to have a market in countries where the background was entirely different, but they might have some market in South American countries and in the Far East. They should not expect any substantial help from the Government for developing foreign markets for Indian films, except by way of removing restrictions on export foreign exchange etc. But, he felt, there should be a certain degree of co-operation among those interested in the industry and it would be worthwhile for them to study among themselves the position of foreign markets and take necessary steps in the matter.

Achievements of Mr. Hari Babu in Make-up and Wig Making

Mr. Hari Babu fixing a wig on the clean head of the artist, Mr. Ranga Rao.

Mukkamala Krishnamurthy

In cinema make-up wigs play the most important part, not only to conceal the baldness or stimulate it but to present a complete disguise of the Character as such. Here are a few illustrations of perfect full wigs used. Significantly it will be noticed that most of the lines of the forehead hair which give the most realistic effect are not lost sight of. This type of wigs have been imported all these days. Thanks, to the laudable steps taken by Mr. Haribabu, a reputed Make-up artist of Madras, due to whose efforts these wigs are now manufactured in our own country.

Mr. Ranga Rao, after making-up.

Another artist Mr. Mukkamala Krishnamurthi with a different wig.

Review of Twenty - Five Years of Sound Reproduction

Dr. Harry F. Olson
RCA Laboratories, Princeton, New Jersey

The reproduction of sound is the process of picking up sound at one point and reproducing it at the same point, or some other point either at the same time, or at some subsequent time. The most common sound-reproducing systems are the telephone, the phonograph, the radio, the sound motion pictures, and television.

The telephone is the oldest sound-reproducing system. There are 51,000,000 telephones in this country. In other words, almost every family has a telephone instrument, which means that any person can talk to any other person in the matter of a very short interval of time.

The phonograph was the first sound-reproducing system which made it possible for all the people of the world to hear statesmen, orators, actors, orchestras, and bands when previously only a relatively few could hear them at first hand. The phonograph is used in every country and clime. In this country there are 35,000,000 phonographs. The popularity of the phonograph is due to the fact that the individual can select any type of information or entertainment and reproduce it whenever he wants it.

The radio like the phonograph is a home-type instrument. There are 3,200 broadcasting stations, 117,000,000 home-type receivers, and 31,000,000 automobile receivers in this country. Practically every family owns a radio receiver, which means that they can hear famous persons in the government, in the industries, in the schools, in the theatre, and in all manner of musical aggregations.

The addition of sound to the motion picture made this type of expression complete. It was the first time that picture and sound were synchronized and reproduced at the same time. There are 18,000 motion-picture theatres in this country. The average weekly attendance is 90,000,000 persons.

Television is the latest system in which picture and sound are reproduced at the same time. Sound is, of course, important to television, because without it, it would be the same as the silent motion picture. There are 30,000,000 television receivers in this country.

In addition to the telephone, phonograph, radio, sound motion picture, and television, there are many other sound reproducing systems. These include, sound systems, magnetic tape reproducers, hearing aids, and dictating machines.

The radio, phonograph, sound motion picture, and television have made it possible for all the people of the world to hear famous statesmen, artistes, actors, and musical aggregations where only a relatively small number had been able to hear them first hand. It is evident that the reproduction of sound has produced in a relatively short time a great change in the education and entertainment of

this and other countries. The impact of the telephone, phonograph, radio broadcasting, sound motion pictures, and television upon the dissemination of information, art, and culture has been tremendous. The reproduction of sound in these fields has been as important to the advancement of knowledge as the printing press and the printed page.

It is the purpose of this paper to present the progress that has taken place in sound reproduction during the past 15 years and the present state of the art.

TELEPHONE

From the standpoint of sound reproduction, the telephone consists of the microphone or transmitter which converts the sound vibrations into the corresponding electrical variations and the telephone receiver which converts the electrical variations into the corresponding, and hence original sound vibrations. Much more equipment is needed for a complete telephone system so that the different telephone subscribers can be connected to each other at will. It is beyond the scope of the purpose of this paper to consider the complete telephone system. Therefore, the consideration will be restricted to the two electro-acoustic transducers; namely, the microphone (sometimes termed the transmitter) and the telephone receiver.

The carbon type microphone has been used in the telephone since the inception of a practical telephone system. Improvements have been made in the microphone from the standpoint of increased frequency range, lower distortion, and operation independent of the orientation of the microphone. The response frequency range of the latest development exhibits a smooth response characteristic up to 6,000 cycles.

The telephone receiver used in telephone systems has been the bipolar system with a steel diaphragm. Except for improved materials for the permanent magnet, the pole pieces, and the diaphragm, this fundamental design has been universally used since the inception of the telephone. However, about three years ago a new type of telephone receiver was developed. This system employs a ring-type armature and large diameter coil system. The advantage of this design resides in the use of the most suitable material for each part of the vibrating system, as, for example, material that will carry a high flux density for the armature, a non-magnetic, lightweight material for the diaphragm, a high permeability magnet material for the magnetic circuit, and a permanent magnetic material with a large BH product. The vibrating system includes an acoustic resistance which in conjunction with a proper selection of the remainder of the element provides a system which exhibits uniform response to beyond 6,000 cycles. The sensitivity is 6 decibels higher than existing bipolar telephone receivers.

DISK PHONOGRAPH

The disk phonograph consists of either acousto-mechanical or acousto-electric-mechanical means for producing an undulation in the groove in the disk record which corresponds to the original sound vibrations and either mechano-acoustic or mechano-electro-acoustic means for producing sound vibrations which correspond to the undulations in the groove of the record.

The phonograph was the first sound-reproducing system which made it possible for all the people of the world to hear statesmen, artistes, symphonies, bands, and all manner of musical aggregations where only a relative few had been able to hear them first hand. During the first two decades after the commercialization of the phonograph, recording and reproducing were made by acoustical and mechanical means. After the advent of the vacuum tube, recording and reproducing have been made by a combination of acoustical, mechanical, and electrical means.

In the electrical recording system, the output of the microphone is fed to an

amplifier which drives the cutter. In the electrical reproducing system, the output of the pickup is fed to an amplifier which drives the loudspeaker.

Although electrical recording of disk phonograph records was developed and commercialized more than thirty years ago, the advent of almost universal reproduction by electrical means has taken place during the past twenty-five years. The crystal phonograph pickup employing a Rochelle salt crystal as the transducer made the electrical reproduction of phonograph records commercially feasible. The reason being that the crystal pickup provided a simple system with high output that could be coupled directly to the input of a vacuum tube. Within the last few years, barium titanate has also been used as the transducer in piezo-electric pickups. The advantage of barium titanate is that it will withstand higher temperatures and humidity conditions than Rochelle salt. The disadvantage of barium titanate is that the output is considerably less for the same mechanical impedance at the stylus. Magnetic, dynamic, electronic capacitance and variable resistance pickups have also been commercialized during the past twenty-five years. At the present time, the magnetic pickup appears to be used to a large extent in high fidelity systems.

One of the new elements used in recording disk records is the feedback cutter in which the motion of the cutting stylus is controlled by a pickup coil at the stylus, the output of which is connected in negative fashion to the input of the amplifier which drives the cutter. The net result is a smooth response-frequency characteristic coupled with low distortion.

An improvement in signal to noise in recording the original lacquer record has been accomplished by the use of a heated stylus. This improvement is brought about because the walls of the grooves are exceedingly smooth when a heated stylus is used in recording.

A major improvement in commercial disk records was brought about by the introduction of microgroove vinylite records shortly after the end of World War II. The use of the fine groove led to improvement in the response-frequency characteristic and the reduction of distortion. The use of vinylite also led to an improvement in signal-to-noise ratio. Commercial disk-phonograph records today exhibit a response-frequency characteristic of at least 40 to 15,000 cycles and a signal to noise of more than 50 decibels.

The disk-phonograph system is also used in broadcasting stations for recording and reproducing radio programmes. This process has been termed a transcription.

The two electroacoustic transducers used in the phonograph system are microphones and loudspeakers. These will be described in a subsequent section.

RADIO

A radio broadcasting system consists of a transmitter and receiver. At the transmitter the sound vibrations in the studio which represent the program material are converted into the corresponding electrical variations by the microphone. These electrical variations modulate a radio-frequency system which is coupled to the antenna where the resultant signal is radiated. A small part of the signal from the transmitter is picked up by the radio receiver antenna. This signal is amplified and demodulated into the original audio-electrical signal. The audio-electrical signal is amplified and fed to the loudspeaker which converts the electrical variations into the original sound vibrations.

Two types of radio broadcasting systems are in use today. These are characterized as amplitude and frequency-modulated radio-frequency systems. Broadcasting on amplitude-modulated signals was started in the early 1920's. Broadcasting on frequency-modulated signals was started in the late 1930's. The frequency spacing between stations in the

amplitude-modulated system is 10 KC. The limits to some extent the frequency range of amplitude-type receivers except for very strong signals. In the frequency-modulated system there is no frequency bandwidth limitation as far as the audio-frequency range is concerned. The high signal-to-noise ratio and no frequency limitation on the bandwidth make the frequency-modulated system particularly suitable for high fidelity transmission.

The two electroacoustic transducers used in the broadcast system are microphones and loudspeakers. These will be described in a subsequent section.

During the past twenty-five years, tremendous progress has been made in the services of radio broadcasting and the performance of radio receivers. The development and almost universal use of the automobile radio receiver constitutes one of the outstanding services of radio broadcasting. Personal radio receivers of a size that can be carried in the ordinary pocket and a weight of only a pound have been developed and commercialized. The performance of both table and console model radio receivers has been steadily improved. With the advent of frequency modulation, an ever increasing number of high fidelity radio receivers are coming into use. In spite of television and the increasing popularity of the disk phonograph, the popularity of radio broadcasting and the continued sale of radios has not diminished.

In addition to conventional broadcasting, there are radio communication systems of all types, involving stationary and land mobile land, water, and air systems.

SOUND MOTION PICTURE

The addition of sound to motion pictures made this type of expression complete. It was the first commercial system in which picture and sound were synchronized and reproduced at the same time. The commercialization of sound motion pictures was practically coincident with the founding of the Acoustical Society of America.

The sound in the first sound motion picture was recorded and reproduced on large disk records. The recording turntable was synchronized with the camera to record the sound as the action was photographed. In reproduction the disk turntable was synchronized with the photographic projector. The elements of the recording and reproducing systems were essentially the same as the disk phonograph. The disk recording and reproducing system was soon displaced by the photographic recording and reproducing system.

The photographic recording and reproducing is accomplished by recording the information in the form of a sound track located between the sprocket holes and the picture. Two types of sound tracks are used; namely, variable area and variable density. In the variable area the modulation is in the form of a variable area of exposed and nonexposed film. In the variable density the modulation is in form of a variation in density of the exposed film.

A galvanometer-type movement with a mirror is used to record the variable-area sound track. The light from an incandescent lamp is sent through an optical system, then reflected from the mirror and then through another optical system to the film. The sound track consists of exposed and nonexposed portions corresponding to the vibrations of the galvanometer. The deflection of the galvanometer corresponds to the current flowing in the coil.

A two-ribbon dynamic-type light valve is used to record the variable-density sound track. The light from an incandescent lamp is sent through an optical system, then through the aperture between the ribbons and then through another optical system to the film. The sound track consists of variations in density corresponding to the opening between the ribbons. The ribbons are located in magnetic field. When a current is sent through the ribbons, the ribbons

are deflected in accordance with the magnitude of the current.

In recording, the output of the microphone is amplified and fed to the galvanometer or light valve. The vibrations of the galvanometer or light valve correspond to the sound vibrations which strike the microphones. Thus, the variable-area or variable-density variations correspond to the orginal sound vibrations.

In reproducing the recorded sound the light from an incandescent lamp is focused as a fine slit upon the film. The light passes through the film and falls upon a photocell. The output current developed by the photocell is proportional to the light which falls upon the cathode. The amount of light which falls upon the photocell is a function of the unexposed area of the variable-area sound track or as the inverse of the density of a variable-density sound track. The output of the photocell corresponds to the variation in the area or density of the film, which in turn corresponds to the original sound variations. The output of the photocell is amplified and sent to a loudspeaker which recreates the original sound.

The two electroacoustic transducers used in a sound motion picture system are microphones and loudspeakers. These will be described in a subsequent section.

The sound motion picture system described above has been in use for two and one-half decades without any fundamental changes. However, there have been many significant improvements as follows: the use of ultraviolet light in recording, the use of a ground noise system which limits amplitude in variable area or density variable to that required to accommodate the signal, the use of two-way loudspeaker systems, and improved film transport mechanisms which insure constant motion of the film.

About fifteen years ago stereophonic sound was applied to a standard picture release. The sound was recorded on several tracks upon a film separate from the picture. In addition to the sound track a control track was also used. Loudspeakers were spaced behind the screen as well as around in the theatre. The several channels were fed to the appropriate speaker system by means of the control track. Thus, it will be seen that in addition to the standard stereophonic sound other effects could be obtained.

There are many types of motion picture stereophonic sound systems ranging from one or more sound channels and one or more control channels.

Within the last year, stereophonic sound systems employing multiple sound channel have been introduced on a wide commercial scale. In one system four separate magnetic sound tracks are used. Two of the tracks are outside of the sprocket holes and the other two are inside the sprocket holes. The output from three separate sound channels and the control channel are recorded on the four magnetic tracks. In reproduction, four separate magnetic head, amplifier and loudspeaker systems are used to reproduce the sound in perspective. A wide screen is used in projecting the picture. The three loudspeakers are spaced behind the large screen.

TELEVISION

Television is the latest system in which picture and sound are reproduced at the same time. Sound is, of course, indispensable to television because without it, it would be the same as the silent motion picture.

The sound channel in television is a frequency-modulation system. There are no fundamental limitations to obtaining wide frequency range, low distortion audio signals in a television system.

The elements of the sound reproducing system in the transmitter and the receiver in a television system are the same as in the radio broadcasting system.

DICTATING MACHINES

A dictating machine consists of a sound recorder and reproducer used for dictat-

ing letters and similar material. The early machines employed a mechanical recorder and reproducer. Machines developed and commercialized during the past two decades employ a recording system consisting of a microphone, amplifier, and cutter or embosser similar to the phonograph recording system. The reproducing system consists of a pickup, amplifier and loudspeaker similar to the phonograph reproducer. Cylinder, disk and belt records are employed as the storage medium. Dictating machines employing magnetic tape recorders, and reproducers have also been developed and commercialized.

SOUND SYSTEMS

Sound systems is a term used to designate all manner of sound-reproducing systems as follows : public address, sound reinforcing, electric megaphone, intercommunicating, announce, paging, and call systems. In general, most of these systems involve microphones, amplifiers, and loudspeakers arranged in different ways to accomplish the desired results. Public address systems are used to increase the coverage of the voice. Sound-reinforcing systems are used to augment the output of any sound source. Electric megaphones are used as speech reinforcing systems. Intercommunicating systems are used to communicate between different locations by means of loudspeaking systems. Paging and call systems are used to cover many locations by means of loudspeaking systems. The equipment for the different applications involve electroacoustic transducers with widely differing characteristics. In some systems, loudspeakers having an efficiency of over 50 percent and capable of handling kilowatts input have been developed and commercialized. Gradient microphones have been developed and commercialized that are capable of picking up intelligible speech in the presence of an ambient noise level of over 100 decibels. Practically every school, church, theater, office, store, warehouse, and factory in the country employs some type of sound system. All of these applications of sound systems have taken place during the past twenty-five years.

HEARING AIDS

Tests made upon a representative cross section of the people in this country show a very large percentage to be hard of hearing. Practically all of these people may obtain satisfaction from the use of a hearing aid. A hearing aid is a complete sound reproducing system consisting of a microphone, amplifier, and receiver which increases the sound pressure or stimulus over that normally received by the ear.

During the past two decades, hearing aids employing vacuum tubes have been developed to a high order of quality combined with small size. The development of subminiature vacuum tubes has made this possible. The amplifiers are for the most part three pentode type vacuum tubes with resistance-capacitance coupling. The microphone used with the vacuum the hearing aid is of the diaphragm type using either a Rochelle salt crystal or a barium titanate ceramic as a transducer. The ear receiver is a magnetic type similar to the standard telephone receiver. The receiver is made very small and unobtrusive so that it may be placed in the outer ear cavity and coupled directly to the ear canal. The bone conduction receiver is also of the magnetic type with a mechanical transformer that couples the vibrating system to the mastoid bone. The electrical impedance of the receivers is relatively low, being about 100 ohms. Therefore, a transformer is used to couple the output of the power vacuum tube to the receiver.

During the past two years, transistor-type hearing aids have been developed and commercialized. The advantage of the transistor amplifiying system is the low battery-power consumption. In addition, only one battery is required as contrasted to A and B batteries in vacuum tube hearing aids. The input electrical impedance of a transistor is relatively

low. Therefore, the microphone which has been developed for transistor hearing aids is a diaphragm type employing a magnetic transducer. The electrical impedance of this unit can be made so that it matches the input electrical impedance of the transistor. The receivers used with the transistor hearing aids are the same as those used with the vacuum tube hearing aid.

MAGNETIC SOUND REPRODUCER

The use of a moving magnetic wire as a means for reproducing audio signals was demonstrated over a half century ago. However, it is only within the last decade that theories, techniques and materials have been developed which make it possible to reproduce audio signals with a satisfactory performance from the standpoint of frequency range, signal-to-noise, and distortion. Although satisfactory performance was obtained from wire, magnetic tape consisting of a plastic base coated with a thin layer of iron oxide is now almost universally used in magnetic sound reproducers.

In recording, the amplified output of a microphone is fed to a U-shaped electromagnetic head in contact with the tape. The head magnetizes the coating of the tape in a pattern which corresponds to the signal applied to the head. That is, the magnetic flux pattern consists of a series of permanently magnetized sections. A similar head is used for reproducing. When the tape is reproduced, the magnetized sections move past the head and produce a magnetic field in the head which corresponds to the pattern on the tape. As a result, the electrical signal developed by the reproducing head corresponds to the electrical signal applied to the recording head when the signal was recorded on the tape. The output of the reproducing head is amplified and fed to the loudspeaker. To overcome the nonlinearity of the tape or wire, a high frequency signal, termed a bias, is fed to the recording head together with the audio signal.

The overall performance of the magnetic-tape reproducing system is exceedingly good. A frequency range of 30 to 15,000 cycles with a signal-to-noise of 60 decibels can be obtained with a tape speed of 15 inches per second. One of the advantages of magnetic tape or wire reproducing system is that the tape or wire may be used over and over again by erasing the preceding recording.

Magnetic-tape reproducers have been commercialized as complete portable units housed in a case of less than one cubic foot. High quality professional-type units are employed in broadcast stations for the production of transcriptions. Practically all sound motion picture sound is recorded on magnetic tape and transferred to film for release. Release prints are also made with magnetic tape strips. See section on Sound Motion Picture. The original recordings for phonograph disk records are now made on magnetic tape. Complete television signals, both monochrome and colour, have also been recorded and reproduced by means of magnetic tape.

MICROPHONES AND LOUDSPEAKERS

There are two electroacoustic transducers which are almost universally used in any sound reproducing system, namely, the microphone for converting sound waves into electrical variations and the loudspeaker for converting the electrical variations into sound waves. Since these two transducers are common to practically all sound reproducing systems, it seems logical to describe microphones and loudspeakers separately and apart from the different sound systems.

LOUDSPEAKERS

There are two general classifications of loudspeakers in use today; namely, the direct-radiator type and the horn type. In the direct-radiator type a large diaphragm is coupled directly to the air. In the horn type a small diphragm is coupled to the throat of the horn. Through the years many types of systems have been used for driving the diaphragm of the horn.

However, today the dynamic type of drive is almost universally used.

DIRECT - RADIATOR DYNAMIC LOUDSPEAKER

The almost universal use of the dynamic direct-radiator loudspeaker in radio and television receivers, phonographs, magnetic tape reproducers, announcing and intercommunicating systems is due to the simplicity of construction, small space requirements, and the relatively uniform response frequency characteristic. The vibrating system of the dynamic direct-radiator loudspeaker consists of a conical paper diaphragm coupled to a voice coil located in a magnetic field. The magnetic field in the loudspeaker in use today is supplied by a permanent magnet.

The direct-radiator loudspeaker is usually mounted in a flat baffle or some type of cabinet enclosure. The flat baffle mounting is usually confined to laboratory installation because of the rather unsightly appearance and the lack of protection for the mechanism. There are three types of cabinet enclosures; namely, the openback cabinet, the completely enclosed cabinet, and the enclosed cabinet with port. The openback cabinet consists of an enclosure of five sides. The loudspeaker is usually mounted in the side opposite the open side. This type of cabinet is used in conventional table and console model radio receivers, phonographs, and television receivers. It therefore represents by far the largest percentage of direct-radiator loudspeaker enclosures. The enclosed cabinet, with or without a port, is used in sound systems, automobile receivers, and high-fidelity sound systems.

The importance of sound reproduction in our daily life is substantiated by the fact that over one-quarter billion direct-radiator loudspeakers have been built.

HORN LOUDSPEAKERS

A horn loudspeaker consists of an electrically driven diaphragm coupled to a horn. The principal virtue of a horn resides in the possibility of presenting practically any value of acoustical resistance to the driving system. The horn provides a matching means between the large acoustical impedance of the relatively heavy diaphragm and the small acoustical impedance of the relatively light air. Practically all horn driving units are of the dynamic type. The horns used are of the flared type because this shape provides a more uniform coupling between the diaphragm and the air. The efficiency of horn loudspeakers ranges from 25 to 50 percent as contrasted to 1 to 5 percent for direct-radiator loudspeakers. Therefore, horn loudspeakers are particularly suited for large scale sound reproduction where it is more economical to employ a high efficiency loudspeaker with a correspondingly smaller power amplifier. Horn loudspeakers are used in the following large scale sound reproducing systems: sound motion picture, sound reenforcing, and public address systems. Folded or straight axis horns may be used for the frequency range. Straight axis horns are used for the high frequency range. Multiple pyramidal, cylindrical, or cellular horns are used to improve the directivity.

PERFORMANCE OF LOUDSPEAKERS

In spite of general opinion to the contrary, the performance of a high-grade loudspeaker is remarkably good. Loudspeakers with uniform response over the frequency range from 40 to 15,000 cycles are commercially available. Loudspeakers for home reproduction are available in which the nonlinear distortion is less than a fraction of a percent for reasonable sound levels. This value of nonlinear distortion is less than many other elements in sound reproducing systems. The transient response of loudspeakers with a uniform response-frequency characteristic is very good. Although it is possible to build loudspeakers with performance comparable to other elements of sound reproducing systems, there is still the possibility for improvements in the performance of loudspeakers.

MICROPHONES

Before the advent of the vacuum tube the only practical microphone was the carbon type, because the carbon transducer is in itself an amplifier. The high sensitivity of this microphone is due to the relay action of the carbon contracts. As pointed out in the section on the telephone, the carbon microphone is universally used in telephone systems. The carbon microphone is also used to a limited extent in some applications where high sensitivity is a requirement. Nonlinear distortion and noise in the carbon microphone are relatively high. However, the distortion and noise are not serious in limited-range speech systems. Some reduction in distortion can be obtained by the use of a push-pull or double-button transducer. Nevertheless, the carbon microphone is not suitable for high-quality systems because of the relatively high noise level.

The development of the vacuum tube amplifier made it possible to use microphones with almost any type of transducer whatsoever and opened an entirely new field of microphone development.

The first high-quality microphone was the condenser type consisting of a thin, stretched diaphragm closely spaced to a back plate. The small capacitance and hence high electrical impedance of the condenser microphone precludes transmission of the output over a cable and, therefore, requires a vacuum tube adjacent to the transducer unit. The condenser microphone was almost universally employed for high-quality applications in the decade of the twenties. Following this period, for one and one-half decades the condenser microphone faded into obscurity. Shortly after World War II a miniature condenser microphone was developed and commercialized.

The high-quality dynamic microphone was developed about twenty-five years ago. It was the start of microphones with impedance suitable for transmission over several hundred feet of cable without appreciable attenuation or frequency discrimination. The vibrating system is acoustical resistance controlled. Therefore, for constant sound pressure,, constant velocity is obtained. This in turn produces constant voltage output. This type of vibrating system has been used in dynamic microphones since the original development twenty-five years ago.

As the development of sound reproduction progressed, there appeared the need for directional microphones which would discriminate against noise, reverberation and other unwanted sounds. The first directional microphone which exhibited a uniform directivity pattern over the audio range was the bidirectional ribbon-type velocity microphone. This microphone was developed and commercialized two decades ago. Essentially the same system is employed in the velocity microphones sold today.

The bidirectional microphone was followed by the unidirectional microphone with cardioid directional pattern. The first unidirectional microphone developed over two decades ago employed the combination of a velocity ribbon unit and a pressure ribbon unit. This was followed by a single unit combined with a phase shifting network to obtain a undirectional directivity pattern. Other transducers, including condenser, crystal, and dynamic, have been used in the unidirectional microphones both as separate velocity and pressure elements and as single elements with phase-shifting networks.

The crystal microphone using a Rochelle salt crystal as the transducer was developed and commercialized over two decades ago. The first crystal was of the direct actuated type in which the sound pressure operated directly upon the crystal. Later the diaphragm type was developed in which a diaphragm was coupled to the crystal. The first crystal microphones were of the pressure type. Other types of operation have since been developed. A microphone employing another type of piezo-electric transducer, namely, barium titanate was developed

and commercialized five years ago. The operation and response characteristics are similar to that of Rochelle salt crystal. The activity and hence the sensitivity of the barium titanate transducer is lower than Rochelle salt transducer. On the other hand, it will withstand higher temperatures without deterioration.

Magnetic or moving armature microphones have been developed and commercialized during the past five years. These can be designed for any range of impedances from low to moderately high.

Gradient microphones of higher order have been developed as close-talking, anti-noise microphones. With a second-order gradient microphone, intelligible speech can be picked up under very severe noise conditions, as, for example, ambient noise levels of 100 db. Second-order gradient microphones have also been developed for boom use in sound motion pictures and television. The greater discrimination against noise, reverberation, and other undesirable sounds makes it possible to use a large pickup distance.

STATISTICS ON THE PRESENT STATUS OF SOUND REPRODUCTION

The tremendous part that sound reproduction plays in almost every part of the daily life of everyone can be deduced from the number of different sound-reproducing systems in use today. It is also interesting that practically all of the systems have been commercialized during the past twenty-five years. In the case of the exceptions, the major growth of these has taken place during the past twenty-five years. The data on the number of sound-reproducing systems in use today in the United States are as follows:

51,000,000	Telephones
35,000,000	Phonographs
117,000,000	Radio Receivers
31,000,000	Automobile Radio Receivers
30,000,000	Television Receivers
4,000,000	Sound Systems
80,000	Industrial, Mobile and Aircraft Radio Transmitters
2,600	AM Radio Broadcast Transmitters
560	FM Radio Broadcast Transmitters
380	Television Broadcast Transmitters
18,000	Sound Motion Picture Theatres
1,200,000	Magnetic Tape Reproducers
1,250,000	Hearing Aids
1,000,000	Dictating Machines

The number of some of the components used in sound-reproducing systems that have been sold are as follows:

5,000,000,000	Phonograph Records The rate of sale during the past ten years has been 200,000,000 records per year
250,000,000	Loudspeakers
5,000,000	Microphones

The preceding fantastic statistics attest to the role which sound reproduction plays in every facet of our daily life today.

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PRODUCTION OF ANIMATED CARTOONS

(*Continued from page 30*)

it, will be very costly. In addition to regular checkings done at different stages, animation, inking and painting etc., a most comprehensive checking is done before sending the scenes for photography. Any missing or an extra line, any change in color values between two cells, any difference in the formation of a line is promptly checked and corrected. In such an exacting medium, precision has to be maintained all the way through, for the good and prosperity of the medium.

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NCC 124

Production of Animated Cartoons

— SHANTI S. VARMA

The Comments about the details of production in this report are based on observations made at Walt Disney Productions, Hollywood.

It is extremely interesting and fascinating to know that the very first attempts ever made by man at giving to an image the effect of life was by means of a successive series of drawings. When photography and celluloid film was discovered later, drawings were given up for the time being till the cinematographic art had made great strides, and only after it had developed and perfected its technique of story telling through live human characters, once again were drawings brought to life—this time more scientifically and with a definite aim of trying to reproduce the most subtle and natural human expressions, behaviours and movements. This special technique of story-telling through drawings has made great advances in recent years and we certainly have reached a high mark of perfection. To describe how this originated and to study the production of cartoon pictures is the object of this report. It is so very important because this medium has tremendous possibilities and a great future.

Before we discuss anything else, it will not be out of place to study how we get a feeling of movement through a series of different pictures projected in quick succession. On the basis of this depends the understanding of animated pictures. Any feeling of movement that we get is just an illusion and is possible because of the peculiar property of the human eye to retain, on its retina, though for a very short duration, an after-image of anything just seen. This, in technical term, is referred to as the persistence of vision. Before the image of the first picture completely vanishes from the retina of the human eye, the next picture is projected the image of which overlaps the first one and this process goes on repeating. During the time one picture gives place to another, there is complete darkness and the time is so short that the human eye does not perceive. All the pictures differ from each other with slight changes in the details of movement. How much these pictures differ from each other will finally determine the extent of movement.

While talking about the history of animated pictures, we cannot afford to overlook the importance and growth of comic strips. We can safely say that the comic strips kept our interest alive in the medium of story telling by means of drawings and sketches. Comic strips could well be referred to as the forefathers of present day animated pictures. The crude forms of comic strips could be traced down to pre-historic days but close to 1890's found the release of comic strips in newspapers. They were then referred to, very appropriately, as "FUNNIES", their sole purpose being to create humour among the masses. The comic strips soon established themselves as a social force and yet another new mode of human expression. Soon, definite characters emerged out of these comic strips. We surely were heading along the right direction. Though the comic strips were primarily intended to create a few

moments of laughter and light entertainment but their general appeal to the masses augured well for their future through another medium. The next most natural step was to elaborate the in between scenes of the comic strips and reproduce them by means of motion picture medium, which had attained considerable perfection by then. The development of the animated pictures in the early stages of its history was anything but encouraging. The medium had been discovered but could not be used with any major success. The reason being that animated cartoon production, even in its most simplified form is a very costly medium. When you think of 16 independent drawings drawn by hand which have to go to make a foot of film, the cost of producing even a 5 minute film is quite staggering and it certainly could not compete with its counterpart the live action movies. For quite some time animated pictures were restricted to 5 minute shorts more popularly known as "cartoons", because of their specific purpose of creating humour. It was quite a responsibility of our pioneer animators to create gags from their drawings and to keep the people in high spirit throughout the duration of the show. They lacked perfection but to them must go the credit of keeping the art alive under trying conditions. They laid the foundation of an entirely new medium which was to make history in days to come.

No record of the history of animated pictures could be complete without the mention of Walt Disney and his outstanding contribution to modern cartoon pictures. Right from 1920, his humble beginnings, he has been making history. He has brought the animated pictures from what was considered to be but a "ridiculous, unexpectedly absurd form of humour" to its present form of one of the finest means of entertainment and subtle humour, almost single-handedly. Through classics like "Snowwhite and the Seven Dwarfs" and "Bambi", he has explored and exhibited the tremendous possibilities that this medium has.

THE IDEA IS BORN

Some sort of a story is the initial thing for any production. The story department develops an idea or a story by means of a series of sketches. The initial stage of picture making is quite important because once the story has been decided upon, into the production of it will go tons of money and months of hard labour. Planning is most necessary at this stage. All scenes should be minutely worked out so that there is no irrelevant sequence, because to discover its irrelevancy at any later stage is bound to be a costly experience. The story must have an overall continuity, well defined characters and wealth of incidents. It must have a smooth flow so that the audience anticipate and accept the next sequence with all their emotions. All this cannot be achieved by one single person. A brilliant idea may occur to any individual who has nothing to do with the picture at this stage. Story-sketches will, in a quick glance, give a gist of the whole story and if someone has any brilliant idea to offer, which in any way helps enhance the dramatic or any other aspect of the production, he should be encouraged. Even finding out the illogical and irrelevant things is a contribution of no mean order and this, as has been most often seen, is best done by a man who has not been a part of it. He is one of the audience and his analysis does represent at least a section of the total audience. To have the story in the sketch form is very advantageous. You can, with the screen in your mind's eye, directly gaze at the story through the camera's eyes, the way it is going to be presented finally. It is most essential that at this stage the story should be kept open to changes. A story could be worked out in an infinite variety of ways and yours may necessarily not be the best approach. As the ideas begin to settle and the more you are in it, involved in a set pattern, the more likely you are to disregard the other approaches. It is at this stage that you need most the give and take of ideas, because before

long you will be in production when it will be too late.

One of the primary concerns of the director and the story department is to develop their characters with meticulous care so that they attain a definite identity, however insignificant their role may be. The screen has a magical charm of taking the audience in confidence and allowing them to identify themselves with the characters.

PREPARING THE STAGE

Once the basic layout of the story has been finalised, the director breaks down the whole story in different sequences, mentally works out the various scenes. He, with close co-operation of the layout designer, plans the different angles through which the particular scene should be taken and works out the details of the background. Between the two of them, they have to work out all details of the camera movements and movements of the character. This has to be borne in mind that once the camera angle changes, a separate background has to be painted. The layout designer has a very important duty to perform and besides being a fine artist, he must have a good camera sense and its dramatic possibilities, because the whole picture is to be presented through his views. He should if possible design his backgrounds in such a way that they could be used in more than one scene. He has also to keep in mind the time of the day and the mood of the story while laying out the design. The moment a scene opens, the audience must share the mood of the story and this can be achieved only by having an authentic background, incorporating those little props, which go to build up the mood. All this is very necessary in a motion picture where you expect your audience to participate in the action. They must have no moment of hesitation to associate with the characters and the locale. How he works in practice is to draw a couple of rough sketches of different possible backgrounds, then in consultation with the director elaborates on the one which has been commonly approved. The final layout drawing is passed on to the background painter who draws it on a thick board, matching exactly all the registration lines and paints it. The layout designer also suggests the size of the characters in relation to the background and also helps the colour model department in finally selecting the colour of the characters.

While the backgrounds are being laid out, and painted, the model artist has to get busy to set the forms of all the characters involved in the production. So many animators will be working on the same character for various scenes and it is only natural that each of them have some standard to refer to in order to avoid confusion later. The model artist "sets" the form of a particular character, establishes his proportions and physical relationships in various stages. The models that he prepares should portray all the characteristics of the role they are going to play, in other words they should be sympathetic to the character.

PLANNING THE MOVEMENT

The director has by now a good visual idea of the whole picture, scene by scene. He now resorts to noting down, on what is called "exposure sheets", the details of each scene frame by frame. These charts are to be literally followed by the other departments for the production of the cartoon. He will indicate on these sheets, the view that will be covered by the camera at the start of the scene, technically called the field, the position of the camera in relation to north—south or east—west of the centre of the field, the movement of the camera if any or else of the background to give a pan effect, the number of characters involved in the scene etc. He even plans the movement of the different characters so that they follow a specific rhythmic musical beat. He even indicates the dialogues that the characters are going to speak. although the exact location of each syllable is provided by the cutter who analyses the re-

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corded dialogue frame by frame. This information will be very necessary for the animators to synchronize the lip movements, or facial expressions, with their drawings. The director works out all these details in co-operation with the head animator, effects and music departments.

MAKING THEM MOVE

Bestowing life upon drawings is the specialised and creative job of the "animator" who has to be a man of many accomplishments. Primarily he is a superb nature-artist, he also must have an excellent sense of composition and possess good appreciative qualities, quick to grasp the mood of the picture and introduce his own personal touch. He must have a sound knowledge of human and animal anatomy, the behaviour of different parts of the body under varying circumstances. More than anything else, he must be an imaginative actor, so as to feel exactly how his characters would behave under varied circumstances. This is very necessary to enable him to impart to his drawings that human touch. It is his expressions and ideas that we finally get visually through his drawings. He has to be very precise. Each and every stroke of his pencil must suggest some emotion or expression; must have a function of its own. Neither a stroke too less, nor a stroke too much. He has all the time to think of his drawings in relation to something else, the background, other characters involved in the scene and the mood of the sequence etc. When do a series of drawings become an animated picture? It is only when a single picture loses its identity and becomes part of a moving sequence, contributing its own little bit to what has happened before and what is to follow. On his two dimensional sheet of paper he has to continuously strain for a three dimensional effect.

It is but natural that to exploit his creative abilities to the best, he must be relieved of as much mechanics as possible. The model department must supply him with a chart of model drawings of the characters with accurate proportions. He must also indicate what latitudes the animator can take with the characters in conveying any broad gestures or for expoilting any humorous situation. This is more so necessary because so many different artists will be working independently on the same character, in different sequences and if the work of all these artists is to have any uniformity, cohesion and sameness of purpose, it is essential they must all abide by certain specifications. All these models have to be simple, expressive and individualistic. Besides this the animator should also be guided regarding the movement of the characters, the size and the proportions they should occupy at different places during the sequence, the size in relation to any other character in the same scene. You can imagine, when in a scene there are a couple of characters involved, they must maintain a definite relationship amongst themselves and to the background for each move they make if we are to achieve a perfectly synchronized picture and complete co-ordination amongst the characters.

Coming down to the regular method of production, it is hard to pin point where the animator first appears on the scene. Even in the early stages of the story sketches and planning the layout designs etc., the animator contributes his little bit in planning the action and finalizing the exposure chart. His real work starts when he gets the finalized exposure charts with dialogues. When the story is discussed story men deal with complete scenes, lasting a couple of seconds or minutes and the sketches only reflect the "summing up" position of the scene. When it comes to an animator, he has to think of what is happening every 24th of a second. He has got to visualize the expression of each of his characters as they will react frame by frame. The key animators draws the first few initial pictures called the key drawings upon which the main action, covering the en-

[stamp]

tire sequence depends. As an example, take the case of a deer walking in a forest, it is startled by a strange noise and it runs away. The key animator will draw, first say the deer walking in the jungle, another drawing of it coming to a stop on hearing the noise, a third of the deer giving a startled or frightened look and a fourth of its running away in the other direction. How many drawings he makes depends on the particular need of the scene. If it is a climax scene, requiring very subtle gestures, he may have to make every third or fourth drawing, but in an average sequence, one in twenty-four may be sufficient. The other animators working under and in close co-operation with him will make as many rough drawings in between the key drawings as may be necessary to describe the main action, keeping a close check on the consistency in scale and expressions. The in-betweeners will complete the rest so as to allow the action to flow smoothly. The clean-up artists eliminate all the rough and fuzzy lines, retaining just the essential ones, so that there is no doubt in the mind of the inker when she traces these drawings on the cells.

The animator works on a table with an adjustable top in which is fixed a circular frosted glass, which can be rotated at will. There is a strong light beneath this glass, to enable the animator to see through a couple of sheets of papers, so that he can modify each of his drawings in relation to the others until they present a uniform action. These animation papers have a set of holes at the bottom which fit into a similar set of pegs fixed on the work table, to assure the sheets keeping the same position at all stages. He checks the smoothness of the action by flipping one sheet of animated drawing over its predecessor and his eyes get so trained that he can discover any "jumps" caused by sudden change in the drawings. He can invariably tell how many drawings will be necessary for a certain action, so accustomed he becomes to the speed of the camera at 24 frames per second. But, to finally eliminate any discrepancies between the smooth flow of an action, he uses a moviola on which he can run the rough try out film. He can analyse his drawings frame by frame, run them at a regular speed of 24 frames per second and make the changes if necessary, until he is absolutely satisfied with the smoothness of the action. Besides having a smooth flow, the try out film should convey the feeling of the picture as well. It should have the mood and convey the underlying idea. Very often, just a few minor changes in a couple of drawings bring out the point. It depends on the ingenuity of the animator to plan his work in such a way that he does the minimum of drawings. Very often he achieves this by planning his stationary parts on one cell which stays constant and animating only the moving parts on another cell.

The animator may have to go deep into the subject of studying the structural anatomy of his characters, as to how its live counterpart will behave under similar conditions. For key scenes, in which naturalness of the action is of primary importance, it may be very helpful to photograph the scene with the characters of the picture, retaining all the subtle touches.

MUSIC AND THE SOUND EFFECTS

The try-out film, which has been finally approved by the animator and the director is passed on to the Music Department for writing the score. The dialogues are recorded earlier and the animator synchronises the lip movement of his drawings accordingly. The Music Department analyzes the whole sequence frame by frame, nothing down on a separate card all the important actions and dialogues as they appear in relation to the footage and to the particular frame. It is important that the music score is written very precisely and his process of thorough analysis before writing the score helps to compose the music correct to the frame. The underlying idea behind all this precision work is because of a definite and distinct relationship between the

music and the action; they are inseparably linked together. Sound plays a very important part in providing the necessary mood. It acts as a source of inspiration. Every gesture on the part of the characters can be much more effectively conveyed with appropriate music. The nature of the medium is such that music plays an equally important part in story-telling as the pictorial representation. The movement of the character is originally so planned that it is always in a set rhythm. If for example, a certain character is walking, all his steps on the ground will be in strict accordance with a certain beat. This also holds good for any important action that takes place. The composer in this pre-set rhythm fits in his music. It certainly needs creative ability to interpret the story with musical score in an effort to make the story telling more realistic, more convincing.

Very closely linked to music is the "sound effects" which play such an important part in creating the necessary atmosphere. What props do visually on a set, the sound effects do the same sensually. Imagine a forest scene without the chirping of the birds and all the quaint noises so characteristic of a jungle. It will be so dead and ineffective. The story telling can be effective only when you don't leave your audience even for a single moment flip away from the locale of the picture. He should be so completely engrossed in what is happening on the screen that he becomes a part of it and for that duration forgets even the existence of an outside world. Every conceivable means should be used realistically to attain that ideal. Sound effects, properly handled and executed, can be extremely effective.

Coming down to the mechanics of it, normally every studio maintains an elaborate library of all possible sound effects, carefully catalogued. The library is maintained on a double entry basis and it hardly takes any time to locate the specific sound effect needed. The positive sound tracks are readily available, which are replaced later, so that you do not have to wait. Some of the libraries maintain a permanent record of the sound effects on a tape which facilitates in selecting the right one without spoiling the positive optical track by constant use. The cutter assembles all the sound effects and puts them in synch with the picture. He normally has more than one track of the effects (sometimes as high a number as six or seven) which gives an opportunity to the mixer to interplay with these different tracks at different levels of recording. Very often certain sound effects may have to be recorded afresh if the library does not have the appropriate ones.

After the music has been recorded, the whole picture is subjected to a thorough examination in projection rooms, where the picture can be run backward or forward and at varying speeds. Even a particular frame could be retained on the screen for cross-examination. Various people who have been associated with the making of the picture, by mutual discussion try to improve the picture. This stage of cartoon production is very important as it may be too late to effect any changes later. If the committee finds any scene completely flat, it may have to be redone but such cases are rare.

DRESSING THE CHARACTERS (INKING AND PAINTING)

The cleaned up animation drawings are traced on the celluloid cells. These cells also have similar holes, so by putting the drawing and the cell together through the same pegs, perfect registration is obtained. To call these artists just tracers, will be ridiculing their merits. They are all essentially, good artists and it takes them quite a while before they can master this art with any perfection. It is a difficult art in the sense that the inkers have to forget their own individuality, as they don't have the freedom of incorporating their own touches. They have to understand the animator and interpret his ideas as truthfully as he or she can. Every line of his should faith-

fully express the subtleties of the original drawings. To achieve this, the inker is encouraged to develop the same swing of his arm as the animator's. He has to be very soft with his touch so as not to dig into the cell. He has to learn to distinguish "steady" from the "action" lines. The line which is involved in any action has to be thick so as to make it look prominent as it will constantly be changing its position in each frame. What colour to use for all these tracings is suggested by the Colour Model Department, which originally suggested the colour of the characters. It is important to note at this stage that there may be a certain deviation from the original suggested colour of the characters from scene to scene. If for example, it is a late evening or night scene, we possibly can't use the same colours as we used in a day scene. The colours will have to have some extra blue to "cool" down so as to suit the sequence. The deviations could not be very broad for the obvious reason of maintaining the same colour for a character throughout the picture. To effect this subtle change, new paints may have to be mixed. The colour model department usually prepares a standard colour chart for each character marking out what particular colour to use for a certain line. If there is any deviation from the standard, they have to prepare a separate colour chart or suggest the corresponding changes in the original. Each inker has one of these charts to refer to, which insures the uniformity.

After inking, the cells go to the paint department. The artists here too have the same colour chart for their reference. The cells are always painted on the reverse side. At this stage it has to be figured out what relative position is the particular cell going to occupy in relation to the others as this will decide what specific shade of the colour to use. If a certain character on a cell occupies the top position in one sequence and goes down to the third or fourth level in another scene, he possibly cannot have the same colour in the two sequences. The cells are not truly transparent and impart their own tint to the original colour. This change will depend on the number of cells placed on top. Taking a specific case, the cell on the top will have to have a darker shade and the one down below a lighter one of the same basic colour to compensate for thickness of the cell and its inherent colour.

PHOTOGRAPHY

The camera set-up needed for cartoon productions, consists of a rigid table with a heavy lathe-like base. The camera is mounted on top, facing down upon this table. The camera is capable of all sorts of movements. It can be brought up and down, moved to north and south or east and west. It also can rotate for a complete 360 degrees on its own axis. Some of the set-ups have only two movements of the camera viz., up and down and its axial revolution. The north, south and east, west movements are accomplished by moving the table. The table is equipped with pegs both on top and bottom, for placing the cells and the backgrounds etc., in their correct position. The placement of these pages is parallel to each other. They can be moved in either direction. All these movements are callibrated very precisely. These pegs help keep exact registration and steadiness during photographing process. The camera operator gets all the various cells needed for a particular scene along with its respective background. Exposure chart is his guide. The background occupies the lower-most position and the order of placement of the different cells is indicated in the exposure chart. The exact location of the camera, called the field, north, south and east, west position is also indicated, having been worked out in advance. The position of the camera will determine the field of view.

The undermentioned points are of importance for operating a crane.

1. The cells should be placed in the order indicated to avoid confusion.
2. The total number of cells must always be kept consistent to avoid

any sudden flashes. The exposure varies with the number of cells in use. To counteract any sudden change in exposure, a blank cell may have to be used.

3. Normally, the whole set-up is arranged to work with four cells at a time. Any deviation from this will necessitate a change in exposure.
4. The diaphragm is kept constant in practice and the changes in exposure are brought about either by a change in the voltage supplied to the light source or the shutter angle of the camera.
5. All the respective movements, both of the camera and the back-ground, and of the cells are manipulated by the different counters and these have to be precisely checked before making the next exposure.
6. It is best to develop a set routine of effecting all the changes in a certain order to avoid confusion.

In addition to the standard camera crane, Disney's have perfected a Multiplane camera. The basic idea behind this set-up is to have background and the different cells at different levels, so as to achieve the natural perspective and get a three dimensional effect. It is a very complicated set-up, each level is lighted up separately and has different movement. To have everything in focus, it necessitates long exposures with closed diaphragms. It needs extensive experimentation, before a scene could be set up on a Multiplane. Though it has unlimited possibilities the cost discourages any extensive use.

SPECIAL EFFECTS

Very often the Director desires to have an effect which is not of a routine nature. To animate it or else try by any conventional method may be too complicated or cumbersome if not impossible. In such cases a simple and effective way of creating that illusion has to be worked out. It is sometimes amazing to know how simple the solutions can be, but in perfecting them, go days and days of hard labour; creating ripples on the surface of water, under-water effect, combination of live-action and cartoon, double exposure tricks are but to name a few. Even three directional camera movements can turn complicated when all the three movements have to have a definite ratio and proportion to each other. All such moves are planned to slow starts and finish with steady movements in between to give a smooth dolly effect.

RECORDING

We usually have one or two music tracks, a few dialogue tracks and a couple of sound effects tracks, and all of these have to be combined, to form a single sound track. Precision work in re-recording is essential to get the most out of this medium. The system practised at Disney's is precision work perfected over years of experience. There are three to four mixers, each responsible for three to four sound tracks. All of them are provided with cue sheets which has a record of their tracks as they appear and disappear at different footage of the picture. The mixer has not to look to the screen for any clue, instead the editor, by moving a set beam of light on his master-chart, indicates to the mixers the exact place in terms of footage. All the five beams of light are so coupled that they move in complete synchronization on the five cue sheets. It helps the mixer concentrate wholly on his pots. As they see the moving beam of light approaching a certain sound track they set it in advance to the predetermined fader number. This is a very precise method and especially suited to cartoon work.

FINAL STAGES

For all animation work it is of utmost importance that a thorough checking should be made at each step before passing it on to the next stage. Any mistake discovered at a later stage when so much labor has already been put into

(*Continued on page* 21)

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Application Of Copyright Law—How It Affects Films

I. K. MENON, Secretary, I.M.P.P.A.

The decision of the Government of India to amend and consolidate the law of copyright in India will be welcomed by the film industry. The completed cinematograph film as such does not enjoy copyright under the existing law but, in view of the copyright vested in its various component parts, it does enjoy legal protection.

Copyright is vested in photographs, musical works, dialogues and so on. Besides, the motion picture constitutes an artistic or dramatic work which is entitled to copyright. Public performance of a work in a theatre or other places of entertainment without the consent of the owner of the copyright is an infringement of copyright.

It is, however, necessary that, while consolidating the law relating to copyright, the position needs to be classified by vesting the copyright in the completed film as well as in its component parts on the film producer or the owner of its negative rights. The term for the copyright in a film has also to be clearly defined.

The law of copyright in India is governed by the Indian Copyright Act, 1914, and the Imperial Copyright Act, 1911, as applied to India. Under section 1 of the Imperial Act, copyright exists in every original literary, dramatic, musical or artistic work. Such work may be published or unpublished. In the case of a published work the only condition necessary is that the work should have been first published within the dominions to which the Act extends. In the case of unpublished works the author should be a British subject or should have been a resident of the aforesaid dominions at the time of the making of the work.

"Copyright" means the sole right to produce or reproduce the works or any substantial part thereof in any material form whatsoever; to perform or, in the case of a lecture, to deliver the work or any substantial part thereof in public; if the work is unpublished, to publish the work or any substantial part thereof; and shall include the sole right:

(*a*) to produce, reproduce, perform or publish any translation of the work;

(*b*) in the case of a dramatic work, to convert it into a novel or other non-dramatic work;

(*c*) in the case of a novel or other non-dramatic work, or of an artistic work, to convert it into a dramatic work, by way of performance in public or otherwise;

(*d*) in the case of a literary, dramatic, or musical work, to make any record, perforated roll, cinematograph film; or other contrivance by means of which the work may be mechanically performed or delivered; and to authorise any such acts as aforesaid.

REPRODUCTION

For the purposes of the Act, publication in relation to any work means the issue of copies of the work in the public, and does not include the performance in public of a dramatic or musical work, the delivery in public of a lecture, the exhibition in public of an artistic work, or the construction of an architectural work of art but, for the purposes of this pro-

vision, the issue of photographs and engravings of works of sculpture and architectural works of art shall not be deemed to be publication of such works.

The term for which copyright subsists is the life of the author and 50 years after his death. Reproduction of a work is, however, permitted after 25 years of the death of the author, after giving due notice and payment of 10 per cent royalty to the author. Special periods of copyright have been provided for the following works amongst others.

Mechanical Instruments: Fifty years from the making of the original plate from which the contrivance was directly or indirectly derived (Section 19).

Photographs: Fifty years from the making of the original negative from which the photograph was directly or indirectly derived (Section 21).

Under Section 4 of the Indian Copyright Act, translation is permitted of a copyright work first published in India, after 10 years of its first publication. But if within this period, the author or any other person with his permission publishs a translation of his work in any language other persons shall not have the right to produce or perform its translation in that language.

Dramatic Work: Under Section 35 of the Imperial Act, "dramatic work" includes any piece for recitation, choreographic work or entertainment in dumb show, the scenic arrangement or acting form of which is fixed in writing or otherwise and any cinematograph production where the arrangement or acting form or the combination of incidents represented give the work an original character. Copyright in published dramatic or musical works is comprised of two rights, (1) the sole right to produce or reproduce such work or any substantial part of such work and (2) the sole right to perform it or its substantial part in public. Copyright in unpublished works, however, means only the sole right to publish such works. Unlike a literan work, adigmatic work is protected even if it is not in writing, the only condition being that its scenic or acting arrangement must be fixed.

INFRINGEMENT

The owner of a copyright in literary, dramatic or musical work has the sole right to make a cinematograph film of his work.

If the incidents and dramatic effects of an original play are reproduced in the same order or arrangement in another work, the author of the latter work will be guilty of piracy. A colourful imitation of a play is piracy and it would not matter in such cases if merely the dialogue has been changed. However, similarly in scenery, dresses of artistes and so on does not constitute an infringement of Copyright. The question of infringement in such cases will have to be considered from the point of view whether the composition of the two is similar. Mere plot of a drama or story apart from other things is not a subject of copyright, especially where the plot is derived from same sources.

If two plays are independent works of their authors and any similarity between them is accidential, then the author of each play would have the right to produce or perform the play written by him and there will be no infringement of copyright. It is an infringement of copyright to dramatic and non-dramatic or artistic work.

MUSICAL WORKS

Section 5 of the Indian Act defines musical works of those resident in India or those first published in India as "any combination of melody and harmony, or either of them, which has been reduced to writing." It is not free from doubt whether all musical works in India would strictly fall within this definition, since some of the musical works, particularly the tunes, may not be reduced to writing.

In the case of film songs, they are mostly sung in character with gestures, thereby constituting a dramatic piece

entitled to copyright. The copyright in such musical works vests in the author or composer, singer and director. So far as Indian films are concerned, this copyright normally passes on to the producer or owner of the film by contract or by custom. If old music is composed in a new form the new work also will be a subject of copyright.

"Cinematograph" is defined under Section (1) of the Imperial Act as "including any work produced by any process analogous to cinematography." A cinematographic production, that is, a motion picture, is an artistic and dramatic work and is, besides its various components therefore, titled to copyright, parts like music, photographs and so on.

In collection works like the motion picture, copyright is vested in the author or producer of the work as a whole as well as in its various contributors. Where a contributor is an employee or is under a contract of service, the employer or producer may be deemed to have the copyright in the absence of any contract to the contrary. For instance, in India it appears that the copyright in the music in films is vested in the producer by contract or by custom. In the United States of America and the United Kingdom, however, the copyright for the public performance of music in films is usually vested in the authors, composers and artistes and a separate license is demanded for the public performance of the music in films in theatres.

The Performing Right Society Limited, representing the authors, composers and singers, issues a license to theatres for playing the music in such films on payment of a fee fixed by them. Such a procedure would act against the interests of the film producers concerned inasmuch as the copyright-owners will be in a position to hold up the public exhibition of films, on the production of which the producers would have spent large amounts. The right procedure would appear to be the vesting of copyright for the public performance of all components of a motion picture in the producer as the collective owner of the copyright in the films.

TITLES

Titles are not, as a rule, subject of copyright. The author of a play or the producer of a film may use considerable taste and judgment in selecting a title from common words or phrases but the combination of these words into a title does not require much specialised skill or judgment. A sufficiently lengthy title entailing labour and skill in construction may, however, be subject of copyright.

On the ground of "passing off" protection has been given to titles. If a producer's film is well-known in the market by a certain title and another uses the same title or a similar one for his picture which is calculated to deceive the public into believing that the latter one also belongs to the former, an action will lie against the second producer to restrain him from using this title or a similar one. In such a case, however, it shall have to be proved that there is a probability of such "passing off."

Another question which has been raised in courts in England is whether a playwright is entitled to sue successfully in an action for passing off, where films are produced bearing the same title as his play.

EXAMPLES

In Hanghton versus Film Booking Office Limited (1931) three films having nothing in common with the subject matter and in their nature unlikely to be confused with the plaintiff's play, had been shown in England under the title "Younger Generation," in the years 1913, 1915 and 1923. Defendant's film was released for exhibition in public in September, 1922. It was held that the evidence fell short of establishing the fact that the title "The Younger Generation," used in connection with the film, meant in the mind of the filmgoing public a film based on the play of that name by the author of the play.

In G. Garman versus Paramount Film Service Limited (1937), it was held that, as there was no immediate prospect of any film version of the plaintiffs' play being produced in public, he was not entitled to an injunction restraining the defendant from continuing to produce his film under the title "Irish and Proud of it." It would, therefore, appear that there is no copyright in the title of a play, unless the owner of the copyright in the play has an immediate intention of producing a film version of it.

In K. M. Multani versus Paramount Films of India Limited (1941) where the plaintiff filed a suit as a passing off action in respect of a film produced by him named "Virginia," against the defendant company who imported and advertised to exhibit a film of the same title, it was held that the plaintiff had not established his allegation that the exhibition of the defendant's picture, "Virgina," would have the effect of misleading the public and the suit was dismissed with costs.

For a successful action for "passing off," there should be a strong probability of confusion of the two pictures (under the same title) in the mind of the public and, therefore, a strong probability of deception.

The same position would arise in the case of titles of pictures under production or to be produced. There can be no copyright in these titles and an action for "passing off" would be very difficult, indeed.

MECHANICAL

Copyright in mechanical contrivances is governed by Section 19 of the Imperial Act, which provides that copyright shall subsist in records, perforated rolls and other contrivances by means of which sounds may be mechanically reproduced, in like manner as if such contrivances were musical works but the term of copyright shall be 50 years from the making of the original plate from which the contrivances were directly or indirectly derived and the person who was the owner of such original plate at the time when such plate was made shall be deemed to be the author of the work.

The scheme of Section 19 (2) (*a*) and (*b*) is "to give anyone the right upon payment of a royalty and complying generally with the provisions of the Act, to make records, perforated rolls or other contrivances by which any particular musical work may be mechanically performed, provided that such contrivances have previously been made by or with the consent or acquiescence of the owner of the copyright in the work. In other words, the owner of the copyright is under no obligation to grant any licence to reproduce his work mechanically but, if he elects to grant any licence, he cannot make the licence an exclusive one." (Copinger, 8th edition). "If a record has been lawfully made, a second manufacturer of record cannot reproduce directly from the record of the first manufacturer even upon payment of a royalty, but must take entirely a fresh record."

PERFORMANCE

Publication of any work means the issue of copies of the work to the public. But it does not include the performance in public of a dramatic or musical work. Under Section 35 (1), performance means any acoustic representation of a work and any visual representation of any dramatic action in a work inducing such a representation made by means of any mechanical instrument.

Broadcasting and reproduction of a broadcast work by means of a receiving set and loudspeaker constitute public performance. Whether or not a performance of any work is in public is a question of fact. To determine this, the damages likely to be suffered and the number and class of persons having a right to be present at the performance have to be taken into consideration.

Performance of music, playing of gramophone records, and so on in public places, restaurants, public gardens, places of public amusement and other places will be public performance. It has been held

that gratis performance in a hospital, merely for the entertainment of nurses and attendants, or exhibition of a film by a film producer in his exhibition room where he does business of selling films do not constitute public entertainment.

Where a dramatic Society performed a copyright play without the permission of its owner, before a monthly meeting of the members of a women's institute, it was held that performance was in public as every adult woman of that town could be a member of the institute. Likewise, performance of music in the lounge of a hotel where residents and guests were present and performance before audience by issue of tickets, even though proceeds were for relief to taxpayers have been held to be public performances.

FILM MUSIC

In the case of public performance of records of film music, there is a copyright in the author or owner of the musical work as well as in the record manufacturing company. For playing these records in public, licence or permission is required from the parties concerned. It will be an infringement of copyright to play records without such licence or permission. This permission may be oral or in writing or by conduct.

Penalties for infringement of copyright are provided in Sections 7, 8 and 9 of the Indian Copyright Act. These include fine up to Rs. 500 and, for second offence, simple imprisonment up to one month or fine up to Rs. 1,000.

Apart from the penalties provided in the Act, the owner of the copyright shall be entitled to all such civil remedies by way of injunction or interdict, damages, accounts and otherwise, as are or may be conferred by the law for the infringement of a right.

From—The B.M.P.A. Journal.

The Mission of the Movies is to Teach

V. Shantaram

The other day I happened to pick up a film magazine. As I opened it my eyes fell on a page which sported a splendid array of bleak, neat figures, figures piled upon figures. I thought I had made some mistake. Instead of picking up a cinema magazine I had unwittingly run into the latest financial report of a profiteering business concern or perhaps a bulletin of some Chamber of Commerce.

I began pondering over the matter. Here again. It was a film paper no doubt, for the cover was adorned by a charming young female star instead of a stiff necked business magnate. I scanned the deceptive page once more and the truth dawned on me. No it didn't contain anything I had imagined it did. It just gave a literal account of certain film's glorious success at the box-office. The parade of figures represented the amounts collected at various stations. The parade ended with a chant of praise for the producer who had achieved the miracle. It was a great achievement. Was it ?

I began pondering over the matter. was a way of looking at things which had never occurred to me during my entire, long film career. The telephone at my table rang incessantly. Our Story Department chief wanted to come over for another of our head-splitting discussions over the script of a forthcoming picture. But I asked him to wait, and went on with my deliberations. Is there any necessity, thought I, for achieving artistic perfection in films, for worrying yourself to death to give something different, something higher to the public, when you could produce a box-office hit in a shorter time and without so much slaying too ?

THE BOX-OFFICE INGREDIENTS

It was indeed an important question. I tried to figure out the ingredients that made the box-office cocktail; the usual boy-gets-the girl stuff, incredible situations, out-of-place humorous punches, and songs thicker than the relatives at the reading of a will. A rather disagreeable concoction for a man with the slightest pretence to aesthetic sense. He would refuse it even if he had lately gone through an era of prohibition and rightly too.

I had myself danced to the box-office tune and produced pictures which created box-office history. But I had been disillusioned, for the gilded tune proved to be a piece of coarse jazz on closer examination. I wondered why some people extolled box-office hits and encouraged producers to run after such a thing. How could such a corporeal tune satisfy our incorporeal soul ?

I could not reconcile myself to the constantly repeated plea that the business of the screen was to entertain only because this meant that the producer's job was to make as much money as possible out of the community and do it as little good as possible. Could he do such a thing in these days of trial and misery without feeling guilty ?

WHITHER HUMANITY

World-upheaval, I continued thinking, must shock our film industry into the realization of its duty to humanity. We have got to make pictures about something other than the struggle of boys to get girls. At any rate, this theme should not be indulged in to the exclusion of consideration for the welfare of society, nation and civilization as a whole. Men-

tally and materially the world is in a state of a muddle. Civilization is in a state of flux, and the human beings are heading towards disaster. People have acquired a wrong philosophy of life, their brains are diseased with the evil passions of hatred, strife, cruelty and domination. Only nature is mockingly functioning as usual; flowers are blooming, birds are singing, brookes are babbling, as if there was nothing amiss.

No creative artist, I believed, could fail to recognise what was going around him and to reflect in his art something of the contemporary scene apart from pure entertainment. A study into the works of all great artists proved this.

A film producer could not reasonably hesitate to take up a theme that deals with an economic or social condition obviously crying for adjustment and correction. I, however, realised that the mission of the screen was not to preach. It is a factual medium, not an argumentative one, a medium for making facts visual. But I also realised that no pen was so powerful, no voice so eloquent as to match for impressiveness a message conveyed by visual image. Wouldn't it be gross folly, thought I, to use this wonderful medium for cheap entertainment only ?

AN AWFUL CRIME ?

I didn't ignore the possibility that pictures with a definite purpose were likely to yield less profit and that there were slightly less chances of their being box-office sensations, because they offended the public by making them feel and think. An awful crime.

But I was sure that there was no harm in making experiments now and then. Huge amounts were being spent every year by industrial concerns to perfect some process or the other. Why shouldn't the film industry also venture such a thing ? Some producer had to make a little bit of financial sacrifice (in the form of less profits), only a little bit, because there was nothing much incompatible between the reasonable (not gluttonous) interests of the box-office and the kind of entertainment that raised the level of audience appreciation. Romance, love, comedy, drama, action and all the climaxes do not all have to be routed out in factual films. All that was needed was careful handling and treatment of the subject. The sacrifice was worth making.

NOT FOR MERE MONEY

I remembered to have been told by somebody that my film "Purchain" actually saved the life of a certain young man who was about to end his frustrated life by suicide. He saw the film and was a new man. I recollected that I felt more than repaid when I heard that incident. What are, after all, a few coins in comparison to a human life.

And yet, brooded I, some people complained about instructive films, films that attacked a social or national evil. Why ! Because there wasn't enough of cheap entertainment in them, because they were not box-office hits.

I wondered why others bothered about the finances of the producer. He could certainly take care of his own pocket. If he is an independent producer, it is his own money he is gambling with, and if he works for a limited concern, he is answerable to the board of directors. Wasn't there something fishy about such philanthropic worries about others ?

To me it seemed misplaced and unwarranted criticism. The famous sculptor Epstein. I thought was perfectly right when he bitterly remarked "Art is the one thing about which everybody is allowed to have an opinion. I have studied Sculpture all my life and yet I am not considered to know as much about my job as the urchin who throws stones at my work. It's a little hard."

My telephone rang again. My colleague still wanted to see me for that never-ending story-discussion. "Don't just come." I shouted over the line, "run over, or better still, fly if you can."

From—The Movie Flash.

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The Primary Factor for the Success of a Motion Picture

MISS INDIRA ACHARYA

Motion picture production is not merely an individual or even a collective business enterprise, but a major industry that has in its employ a large number of skilled workers for discharging its functions. It is at the same time a novel form of art, an effective tool of propoganda, a sort of moralist, a cheap entertainer and a subtle teacher too. Some very eminent thinkers may deny this latter claim as being too tall, and not without justifiable cause also. Valid, can did and authentic appurtenances for treating it as a form of art are still forming and sound traditions are slow to evolve. But the far seeing feel sure that the claim will be justified, and it is sure to stay as a form of art yielding aesthetic satisfaction in the same way as epics do.

Annually many pictures are being turned out of the studios. A few of them pay the producers well, and draw large crowds. Some neither pay the producers nor satisfy the audiences. Some of them pay surprisingly well, despire egregious miscasting, faulty development of the story material and worse still obviously bad direction, while wiseacres go on foretelling its failure. Some whose themes possess undoubted appeal and its off shoot, one expects, a good story inteligble to all and handled by men whose record of work is fairly good, disappoint exceedingly.

It is an interesting study to analyse the primary cause for the failure of a picture. A motion picture tells a story, and if that has no inhering interest, even the gods cannot prevent its failure. Mere great names do not click at the box office. An appealing story, clear and coherent narrative, a sustained dramatic force are among the few things that matter to the audience. Supendous advance publicity, stellar cast, magnificient settings, enthralling music, catchy titles are all the subsidiary—aids to the primary things—that is the story and its power to please and attract, and if that is unsatisfying, the curtain will be down, the doom is foregone.

Let us take a glance at a few releases with special reference to the value of the stories, their appeal, their strength and power, by way of illustration of the above principle. The survey cannot be exhaustive; only a few examples can be taken.

1. Kanyasulkam, 2. Bangarupapa, 3. Dongaramudu, 4. Kanavane Kankanda Deivam and 5. Jhanak Jhanak Payal Baje.

Kanyasulkam deals in motives, incidents and development of life that belongs to a decade behind the present times. A hopeful story has to deal with the historic present or with universal emotions. Gurujada Appa Rao's name may have been one to conjure with by his contemporary audiences but what familiar problems are dealt with in his story to thrill, elevate, or entertain picture goers of the present day, and which Director can help a story lacking in appeal ? And may we say its screen adaptation follows the traditional style of plays for the theatre.

Bangarupapa. A great theme, but what a tragedy is committed in the process of making the story a screen play.

Is it wise to develop one role to the blight of the equally paramount roles in the story? Can such an event enhance the conflict in the story? Can a noble drama evolve out of it? The story being conceptually wrong, it woefully lacks in power of delineation and vivid and smart dialogues. Two interesting roles in the story besides the hero are Jaggayya and his sister's son. Are they handled properly to feed the emotions in the story?

Dongaramudu. A well conceived story developed into a satisfactory play and vigorously narrated, exhibiting a fresh angle in the study of human nature. Is not a thief subject to good impulses as are other human beings? See the struggles and adventures of the hero of the play to save his sister, and you get a glimpse of the Director's vision and his subtle perceptions of the much misunderstood class thieves. A good story but not superb like its predecessor Peddamanushulu.

K. K. Deivam offers a pleasing story but despite many handicaps continues to attract large audiences.

Jhanak Jhanak Payal Baje shows an interesting story material. Its technicolour, excellent dialogues, dance sequences and ornate style of narration save it from halling.

So from the all but brief surves the conclusion is irresistible, that the foundation for the success of a picture is the story which should posses appeal power and beauty.

One may as well interrogate, why, this is the first common place in the theory of production. This is nothing new.

The rejoinder is, why is the obvious forgotten and continually ignored.

Picture production is creation and not an easy accomplishment.

The Director has to have versatality of talent, profundity of thought, a keen observation of human nature, and a flair for dramatisation of events in the story.

Should an Actor Really Feel?

PERCY FITZGERLD

Should an actor really feel the emotions he is depicting? Should be shed real tears, utter genuine sobs, and would the performance gain by his so doing?

This point was first started by Diclerot, the French philosopher. It gave rise to much discussion. Johnson, in his rough way, declared that an actor, who even for a moment, could work himself up to feel like a murderer, ought to be executed after the play was over. But there can be little doubt that it must be decided in the negative; on the ground that such emotional exhibitions are *undramatic,* and that so much realism is mere crude nature. Indeed, such *naturalism,* seems out of keeping with the artistic and abstract associations of the stage.

A more serious objection is, that in this state the actor loses control of himself—and the effect accordingly *ceases to be an artistic display.* The actor, instead of controlling, is himself controlled. Were we to push the theory farther, the best way to represent sickness, or a person in a fever, would be to bring forward a really sick actor; or in the case of intoxication, have the actor made intoxicated behind the scenes, and sent on. Yet, as we know, such realism would add nothing to the dramatic interest. And farther, there is the serious objection taken by Diderot himself, that after several nights the fountain of tears would dry up.

"To keep one's head" said Regnier, "while appearing to give up one's heart, is the secret." Mr. R. Solly Quotes Guizot: "To successfully depict a passion, it is certainly necessary to be capable of feeling it, sometimes to have experienced it: but to feel it at the moment is not necessary and often does harm than good. Talma and Coquelin also hold the same view. Diderot goes so far as to maintain that "in the complete absence of sensibility is the possibility of a fine actor," and then describes him watching himself, listening to the tones of his own voice to see if it be equal to his standard. In other words he "gives us the recollections of his emotions." This seems to be too far. I am convinced that the true method, or compromise or tendency to emotion, but he must keep it in hand and watchfully regulate its course. Were only the phenomena exhibited, the audience would not be touched.

From—'The Art of Acting.'

Such extracts, sketches or articles concerned with various aspects of film production by reputed Authors, are welcome for publication, in this section—'Flashing Thoughts.'

—**Executive Editor.**

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Members are requested to send articles of interest to the Film trade and industry for publication in this Journal.

—THE EXECUTIVE EDITOR

The Cine Technicians' Association
OF SOUTH INDIA

RULES-EXTRACT

MEMBERSHIP

1. Membership of the Association is open to all persons who associate themselves and sympathise with the aims and objects of the Association as expressed and defined in the Memorandum of Association.

2. There shall be the following classes of members in the Association.

(a) *Active Members*: An active member shall be a Cine Technician who comes under one or more of the following heads and who has been actively engaged in such capacity for not less than a year.

Cinematography	Still Photography	Direction
Audiography	Art Direction	Screenplay writing
Processing	Creative Publicity	Dialogue writing
Editing	Projection	Song Composition
Make-up	Electrical Engineering	Music Direction
		Dance Direction

(b) *Associate Members*: An associate member shall be a person who associates himself with the objects of the Association and who is not eligible or willing to apply for active membership.

(c) *Affiliate Members*: Associations similar to this association who affiliate themselves to this association shall be affiliate members.

(d) *Patrons*: Patrons are those who associate themselves with the objects of the Association and support the Association for the general betterment of the industry.

MEMBERSHIP FEE

3. A. ACTIVE MEMBERS

(a) An active member whose monthly income is declared by the member to be below Rs. 200 shall pay a subscription of Rs. 6 per year, payable in advance either in full or in quarterly instalment of Rs. 1-8-0 at the member's option.

(b) An active member whose monthly income is declared by him to be Rs. 200 or above shall pay a subscription of Rs. 12 per year, payable in advance either in full or in quarterly instalment of Rs. 3, at the member's option.

(c) *Life member*: Any active member who pays at any time a sum of Rs. 200 in one lump sum, shall be entitled to be enrolled as an Active Member for life and he shall thereafter have no obligations to pay any subscription for his life.

B. ASSOCIATE MEMBERS

(a) Every associate member shall pay an annual subscription of Rs. 12 payable in advance either wholly or in four equal quarterly instalments.

(b) An associate member who is undergoing training in the Motion Picture Production in any recognized institution, shall pay annual subscription of Rs. 6, payable in advance or in four equal quarterly instalments.

C. AFFILIATE MEMBERS

Every affiliate member shall pay an annual subscription of Rs. 60, payable in advance in full or in four equal quarterly instalments.

D. PATRONS

Every patron shall pay an annual subscription of Rs. 120, payable in advance in full or in four equal quarterly instalments.

4. A member of any category mentioned above who pays a year's subscription in full in advance shall be allowed a rebate of 12½ per cent.

ENTRANCE FEES

5. In addition to the subscription payable under Clause (3) above, the following entrance fees shall also be payable by application for active-membership.

A fee of Re. 1, if the applicant's income is declared by him to be below Rs. 100 and Rs. 2, if his income is declared to be Rs. 100 or above.

6. Subscription is to be calculated from the 1st of the calendar month during which the application for membership is accepted by the Executive Committee.

Application for Membership

7. Any person desiring to become a member of the Association shall send in his application in the prescribed form together with the necessary entrance fee and subscription.

8. Every application for admission to membership shall be decided by the Executive Committee who shall have the right to reject any application for membership without assigning any reason therefor. In the event of any application being rejected, the full entrance and subscription fees paid along with it shall be refunded. The rejection of an application for membership shall be no bar for the applicant making another application for membership after three months from the date of rejection.

9. Every member shall pay his subscription before the 15th of the calendar month on which the subscription falls due. On payments made after the 15th of the calendar month, the rebate mentioned in para (4) supra, shall not be allowed. Members whose subscriptions are in arrears for over three months shall be given a notice requiring them to pay up the arrears within a fortnight from the date of notice and should the member not comply with such notice, his membership shall *ipso facto* cease from the date of expiry of the fourteen days' notice given.

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